

OPTICAL PULSE SOURCE FOR LONG HAUL
OPTICAL COMMUNICATIONS SYSTEMS

ABSTRACT

5 In accordance with the invention, a modulated RZ pulse source comprises a
modulated light source optically coupled to a stabilized Bragg grating filter and one or
more optical taps. The light source is preferably modulated in power and frequency
and has an adjustable channel wavelength λ . The Bragg grating filter has a reflectivity
bandwidth having a high slope reflectivity cutoff and is preferably tunable. A feedback
10 arrangement responsive to the taps keeps the source channel wavelength λ on the edge
of the reflectivity bandwidth for shaping RZ pulses. When the Bragg grating is
stabilized, the feedback system maintains λ at a value linked to the grating reflectivity
edge and, by overlapping at least part of the optical spectrum of the source, converts the
modulated source light into RZ pulses with high extinction ratio (≥ 12 dB). The result
15 is a high power, jitter-free RZ pulse source that is compact, inexpensive and power
efficient.